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**Feedback, feedforward: evaluating the effectiveness of an oral peer review exercise
amongst postgraduate students**

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Abstract

Assessment for learning approaches such as peer review exercises may improve student performance in summative assessments and increase their satisfaction with assessment practices. We conducted a mixed methods study to evaluate the effectiveness of an oral peer review exercise among postgraduate students. We examined: (1) final assessment grades among students who did and did not take part in the peer review exercise; (2) student perceptions of the impact of the peer review exercise and (3) student understanding of, and satisfaction with, this new assessment practice. We found that students who took part in the exercise had a significantly higher mean grade in a subsequent summative oral presentation assessment than students who did not take part in the exercise. Students gained a better understanding of assessment and marking criteria and expressed increased confidence and decreased anxiety about completing the subsequent summative assessment. Assessment for learning improves academic attainment and the learning experience in postgraduate students.

Keywords: peer feedback, assessment, academic achievement

Introduction

Assessment in higher education should critically inform student learning. However, student dissatisfaction with current assessment practice is increasing (Higher Education Funding Council for England 2011). Obtaining high scores in assessments appears to serve as a key motivator of student learning but such an approach emphasises competition and does not promote personal development (Romanowski 2004). Adopting an ‘assessment *for* learning’ rather than an ‘assessment *of* learning’ approach to assessment practices may help to improve student satisfaction in this domain. An assessment *for* learning approach traditionally utilises formative assessment to achieve this goal. A typical example would be a peer review exercise in which feedback is used to improve students’ performance. Students gain a better understanding of the required level of achievement and are provided with strategies to bridge the gap between their current and desired achievement level (Black and William 1998; Sadler 1989). Such peer review exercises can also help students to prepare for summative assessments (assessment *of* learning) by developing their ability to judge the quality of their own work and that of their peers against agreed assessment criteria. The development of this ability underpins their further success (Boud 2010). Peer review exercises may also be a particularly effective way to support students when they are undertaking novel summative coursework assessments. Such assessments often represent a significant challenge because the students have little idea of examiner expectations. In peer feedback or peer review exercises, students typically assess the quality of their fellow students’ work and give feedback. This may be accompanied by formal grading of the other student’s work (van den Berg, Admiraal, and Pilot 2006). Research examining the potential benefits of these exercises has typically been limited to student self-reports of their experience or to comparisons between the ratings and feedback provided by peers and academics (Strijbos and Sluijsmans 2010). This evidence suggests that peer review exercises

are associated with an increase in student confidence, an improvement in critical thinking skills, and a better understanding of the relevant subject matter (Topping 1998; Ballantyne, Hughes, and Mylonas 2002; Davies 2006) . Increased student autonomy and the promotion of deep as opposed to surface learning have also been documented (Ballantyne, Hughes, and Mylonas 2002; Bloxham and West 2004; Nicol, Thomson, and Breslin 2014). However, student gains from taking part in a peer feedback exercise may differ according to whether a student acts as an assessor (giving feedback and/or grades to a peer) or as an assessee (receiving the peer feedback and/or grade from peer). Acting as the assessor is more likely to produce long-term learning transfer gains due to the making of evaluative judgements, engaging with the assessment criteria, and helping the development of reflective and critical thinking skills (Lu and Law 2012).

A key indicator of the effectiveness of the peer feedback approach would be an improvement in student assessment grades on summative assessments after taking part in a peer feedback exercise. Despite the extensive literature examining the potential benefits of peer review exercises as learning tools (for reviews see: Topping 1998; Falchikov and Goldfinch 2000; van Zundert, Sluijsmans, and van Merriënboer 2010; Nicol, Thomson, and Breslin 2014; Ashenafi 2017), there is limited research examining this potential impact. In this context, peer review exercises typically involve students submitting a complete draft of work such as an essay for review. Peers will then anonymously give feedback and mark drafts using assessment criteria. Students are then given the opportunity to revise the completed draft of their work based on the peer feedback received, before submitting the final version for assessment. To date, the evidence suggests that conducting peer review exercises for specific assessments is effective in improving assessment grades in most (Mitchell and Bakewell 1995; Althausser and Darnall 2001; Rust, Price, and O'Donovan 2003; Mulder et al. 2014; Jhangiani 2016; Simpson and Clifton 2016), but not all (Snowball and

Mostert 2013) studies. Furthermore, knowledge and learning gained from this exercise can be transferred to improve grades on subsequent assessments (Rust, Price, and O'Donovan 2003). However, only three of the six positive studies suggesting an improvement in assessment grades as a result of the peer review process had a comparison group of students who did not take part in a peer review exercise (Mitchell and Bakewell 1995; Rust, Price, and O'Donovan 2003; Jhangiani 2016). Thus, firm conclusions about the effectiveness of peer review exercises are limited in the absence of 'no peer feedback' comparison groups (Topping 1998; Strijbos and Sluijsmans 2010).

No study to date has investigated the potential impact of a peer review exercise on performance on an oral summative assessment among postgraduate students. There is evidence to indicate that the educational value of peer review exercises differs according to level of education with UG students paying more attention to their overall grade whereas PG students focused more on the quality of feedback received and ways to improve (McGarr and Clifford 2013). Undergraduate (UG) students frequently report that using peer review exercises for written assessments is time-consuming and academically challenging (Falchikov 1995; Snowball and Mostert 2013). Such considerations suggest that a group peer review exercise as a learning tool, with an emphasis on giving feedback as opposed to grades, may be particularly effective in improving academic performance in oral presentation assessments in postgraduate students.

In the present study, we report on an evaluation of a peer review exercise designed to support postgraduate students in a subsequent summative assessment in which they had to give a short oral presentation describing a piece of clinical work that they had undertaken as part of the 12-month programme of study. For the peer review exercise, we asked former students to give their oral presentations to a new student cohort so that they could see the 'typical' structure and content of this assessment. In order to encourage a dialogue between

peers, we asked the new students to give the oral presentations by former students a grade and to provide feedback using the standardised marking criteria. This was followed by the former students discussing the feedback and grades that they had received from the new student cohort, and the feedback and grade that they had received from examiners in the previous year. As part of this discussion, we also encouraged a consideration of the wider aspects of this particular assessment including assessment details and potential student concerns.

The present mixed methods study had two aims. Firstly, using quantitative methods, to determine whether being a peer assessor in a group peer review exercise improved subsequent student performance on an oral presentation assessment. We report on performance on the oral presentation assessment among students who took part in an earlier peer review exercise in comparison to those who did not. Secondly, using qualitative methods, to elicit student views of peer review exercises as a learning tool. We report student perceptions of the impact of the peer review exercise immediately following the workshop based on a feedback survey, and on students' views of the learning experience in a follow-up focus group.

Methods

Context

Students who took part in this study were from two consecutive cohorts enrolled on a year-long postgraduate psychology programme in a research intensive institution in the UK. As part of their MSc studies, students completed a number of taught modules related to forensic psychology, including a module centred on the teaching of clinical skills relevant to working in a forensic setting. Students undertook this module, which has three assessments, in parallel to a clinical placement in a forensic setting. The first assessment was an essay that required students to select and critically evaluate a policy used at their clinical placement.

The second assessment was a short oral presentation. The third assessment was a reflective report on their clinical placement experience.

The oral presentation assessment was introduced in order to assess students' ability to summarise and present a clinical piece of work that they had carried out on placement. In the year following the introduction of this assessment, a peer review exercise was introduced into the module teaching timetable to provide additional support to students in completing the assessment. As a result of the introduction of this peer review exercise, we were able to compare the final grades on the oral presentation assessment among students who did not take part in a peer review exercise (cohort A 2014-2015; n=20) relative to students who did take part in the exercise (cohort B 2015-2016; n=17). Ethical approval for the study was obtained from the university research ethics panel (LRS-15/16-3611/RESCMR-16/17-3869). Consent to access academic records for the purposes of the present study was sought retrospectively for students in cohort A and prospectively for students in cohort B.

Peer review exercise

All students from cohort A were sent an email requesting volunteers to repeat their oral case presentation to the new student cohort (cohort B). Two students from cohort A agreed to act as such peer assesses in the peer review exercise. The peer review exercise was arranged for two weeks prior to the summative oral case presentation assessment. At the beginning of the exercise, all students in cohort B who were to act as peer assessors were given a short talk on presentation skills and some further details of the case presentation assessment. Students in cohort B were then each given the oral case presentation marking criteria, assessment mark sheet and a structured peer feedback sheet. Following this the first volunteer from cohort A gave their case presentation, and students from cohort B were asked to anonymously assign the presentation a grade and give some feedback (i.e. what was good and what could have been improved). Peer feedback sheets were then collected in and given to the volunteer from

cohort A, who then summarised the feedback and mark received from peers. The students in cohort B and two volunteers from cohort A along with two academics discussed the peer feedback and grades in relation to the final feedback and grade the volunteer in cohort A had received in the previous academic year as part of their summative assessment. This procedure was then repeated with the other volunteer from cohort A.

Summative assessment

The summative assessment was a 12 minute oral presentation whereby students presented a piece of clinical work undertaken with a patient in a forensic setting to two academic markers (HD and JH). Students in Cohort B completed the assessment two weeks after the peer review exercise.

Post-exercise feedback sheets

Immediately following the peer review exercise, students in cohort B were asked to anonymously complete feedback sheets. Feedback sheets contained three questions. The first question asked whether students had a better understanding of the assessment process after taking part in the peer review exercise. The second question asked if they felt more confident in completing the assessment as a result of taking part in the peer review exercise. The final question asked if more peer review exercises should be introduced into the MSc programme. Students gave 'yes' or 'no' responses and were given the opportunity to indicate the reason for their choice.

Focus group interviews

Email messages were sent out to all students in cohort B and the two peer presenters from cohort A, inviting them to take part in a focus group about the peer review exercise. Four students out of 17 from cohort B and both presenters from cohort A agreed to take part in the focus group, which was arranged to take place three months after the date of the summative oral case presentation assessments for cohort B. The focus group interviews were digitally

recorded and lasted approximately two hours. The questions for the focus group concentrated on thoughts about the oral case presentation as an assessment method; what was learnt from listening to and then providing feedback and marking grade to peers; and the extent to which taking part in the exercise made a difference to the content and delivery of the summative case presentation assessment.

Data analysis

Quantitative analysis: Fisher's exact tests, a chi-square test and an independent samples t-test were used to compare cohort A and cohort B on student characteristics. Independent sample t-tests were also conducted to compare performance between cohorts on the oral case presentation assessment (assessment two), essay assessment (assessment one) and reflective report (assessment three). Descriptive statistics were conducted on the yes/no answers from the feedback survey.

Qualitative analysis: Quotations were extracted to describe student perceptions of the peer review exercise from the feedback survey. Data from the focus group was transcribed and thematic analyses used to identify themes that emerged from the group. A thematic framework was developed. In order to analyse the focus group material initial codes were applied to the data, and themes and sub-themes generated.

Results

Comparisons of the two groups of participants are presented in Table 1. Cohort A and Cohort B did not differ significantly on sex, age of entry to post-graduate study, undergraduate degree grade, country of origin or linguistic ability (whether English was viewed as a second language or not) (Table 1).

*** Insert Table 1 about here ***

Effects of the peer review exercise on oral presentation assessment grades

Results from independent sample t-tests indicated that students from cohort A who did not take part in a peer review exercise for the case presentation assessment had significantly lower mean marks (mean=61.2, SD=6.99) compared to students in cohort B who did take part in a peer review exercise (mean=70.4, SD 8.4; $t_{(34)}=3.59$, $p<0.001$, Cohens $d=1.2$). The marks of students in cohort A and cohort B did not differ significantly on any other module assessment (see Table 1).

Student perceptions of the impact of the peer review exercise from feedback survey questions

A total of 15 out of 17 students from cohort B completed a feedback sheet on their experience of the peer-led case presentations. Table 2 presents details of student responses to the post peer review exercise feedback questionnaire. All students who completed the feedback sheets thought that they had a better understanding of what was expected of them. From the analysis of the qualitative responses, it appeared that attending the session enabled the students to understand the *content* better and to know what to include in their presentations. One peer assessor noted '*Yes, I am aware of the components of the presentation and how much emphasis to place on each*'. Another said: '*It helped us to understand what is expected of us and what should be included*'. The peer assessors noted that they understood how to *structure* their presentation. As one stated: '*It was very informative. I know how to structure my presentation and what to include*'. Finally, there were comments on how marking the presentation was also an important part of the experience. One said: '*We got an idea of how to mark and how to improve from previous students*'.

In relation to confidence in delivering their own presentation, 87% (n=13) of students from cohort B who completed post-exercise feedback sheets thought that it had increased their confidence. The presentations helped to *structure their expectations*. As one said: '*Yes, I have*

a clear idea of what is expected and prepare my case accordingly'. It was also reported that the presentations helped to normalise the process: *'the students were good at normalising concerns from their own experience of the process'*. However, a few students found that the peer presentation also generated some feelings of nervousness. One student said: *'It made me more nervous. The first presentation was really good and the person just managed a first class grade. The standard is really high. I hope I will manage in 12 minutes'*.

The introduction of more peer review exercises across the postgraduate MSc programme was viewed favourably. A total of 80% said that they thought this was a good idea. Having past students present was seen as important. One student said: *'Yes, especially with past students. Very helpful to get a better idea'*. Having the opportunity to ask their peers questions was seen as important. Indeed, *'we can ask the former students lots of questions which is very helpful'*. Those who thought further peer exercises were not needed thought this because the course was already intensive and that additional exercises would therefore represent an additional student burden.

*** Insert Table 2 about here ***

Students' views on the learning experience from the focus group discussion

The Experience and Impact of the Exercise

Decreased Anxiety: Participants had a positive experience of the peer-led exercise and reported that it enabled them to feel less anxious about the assignment. As part of the focus group, participants were asked about their thoughts on the oral case presentation assignment prior to them having attended the exercise. It was evident from their responses that, although they were 'excited' about completing a case presentation (rather than completing an essay), there was still some trepidation about the task that lay ahead. One participant said:

*It was nice to do something that reflected the work we have done on
(clinical) placement. But I was also slightly confused before these guys*

came in [the peer presenters] and I wasn't really sure how I was meant to be focusing on my presentation. [Peer assessor; Cohort B]

However, participants reflected that taking part in the exercise led to a decrease in anxiety. One participant said:

It just took off some pressure. It gave us an idea of how to go about it. It was great to see both of the presenters because they both had different styles and to see there isn't one right approach [...]. It gave you a better understanding of crucial aspects. [Peer assessor; Cohort B]

Another said:

I was definitely much more relaxed after I saw the presentations. It didn't seem as daunting. You both had done well and it was nice to see what you had done. [Peer assessor; Cohort B]

A Contained Space: The participants found the process to be a containing experience that led them to benefit from working with their peers. It was reported that the assignment had the potential to generate anxiety from within the cohort of students themselves. One participant described her experience of the assignment when on the course:

We started talking with each other. 'What will be your case?' [...] 'Oh I am doing this', 'I am doing that'. The discussion between peers - it builds up some anxiety when we start talking with each other about the cases. [Peer assessee; Cohort A]

Participants recognised that discussing the assessment outside the classroom setting increased feelings of anxiety and confusion. However, the exercise appeared to have the opposite effect, allowing for a 'contained space' where peers could learn from one another. One said:

It was good because it was a controlled space to talk about it and so it didn't get out of hand. Other assignments people would discuss in and

after lectures and they'd be panicking. But with this there was time to think about it but with you guys [the academics] controlling it. [Peer assessor; Cohort B]

Empowered by Peers: Participants reported that it was important that peers led the exercise and to observe them presenting. One participant said:

It was interesting watching other people doing it. I really liked that it was other students. You always see lecturers, people who are so comfortable presenting, and so it was nice to see people who don't do it the whole time. It made it a bit more real. [Peer assessor; Cohort B]

It seemed important for the participants to see others present who do not do this as a routine part of their job. Not being in a so-called 'expert' position was useful. Another participant said:

It was helpful to listen especially because you could relate to them. We are fellow students. We are peers. We are not listening to people with decades of experience who can throw out a presentation like that because they're doing it on a weekly basis. [Peer assessor; Cohort B]

Observing peers deliver the presentation helped the participants feel able to do it themselves; it was empowering for them. As one participant said:

I think I could relate to them. I then knew it would be possible for me to do a presentation as well. I find public speaking terrifying but when I saw them doing it, it made it seem a little less daunting [...]. It is people at a similar stage in life, early in their career in mental health, they've been at this point last year so the gap isn't massive. That definitely helped. [Peer assessor; Cohort B]

Improved Knowledge of the Assessment: Participants found that the exercise helped them when they went on to prepare for their own presentations. One said:

I think it pointed us in the right direction. When I planned my presentation I thought back to what these guys did. I had a patient in mind and so made notes when they were talking. [Peer assessor; Cohort B]

The presentations provided participants information about what content to possibly include and how to structure their presentation. One participant said:

I found it very helpful to have a structure. There must be specific information covered, there will be these headings. I probably wouldn't have come up with those titles myself (assessment, formulation, intervention and so on) (but it is in the student guidance!). I knew how to categorise the information and have a timeline. I had a framework.
[Peer assessor; Cohort B]

The perceived benefits of the exercise extended beyond the peer observers to the peer presenters themselves. One of the peer presenters explained:

It was a great responsibility to come here and present. I think I learned from presenting again! I think I do it better now at my work from the feedback you gave me. It's constructive. Sort of assessing it again! [Peer assessee; Cohort A]

The Experience and Impact of Peer Feedback and Grading

A Challenging Process: As part of the exercise, students were asked to grade the peer presenters and provide anonymous feedback to them. The marking process generated varied reactions. Most participants thought that it was a difficult process. It was seen as a 'responsibility' and some found that it made them feel uncomfortable. As one participant said:

I felt uncomfortable - I am not qualified. 10 minutes ago I didn't even know what a presentation looks like. Now you want me to mark it? [Peer assessor: Cohort B]

There was therefore an initial reaction of feeling unqualified and being given a responsibility that was challenging. However, despite these thoughts and feelings, participants agreed to give it a try, and as indicated below, also reported some positive benefits of being given this task as part of the exercise.

Improved Understanding of the Marking Criteria: One of the main benefits of asking participants to grade the peer presenters was that they found that it helped them to understand the marking criteria themselves. It brought the marking criteria to life through explicitly grading their peers. One participant reported that they were able to appreciate that the marking criteria were broader than initially thought. They said:

I think there's an equal emphasis on all aspects of the presentation. I think sometimes you think the way you present something is the most important thing. But there were eight different things to be marked. There's loads of different aspects to cover and you need to do well on all of them. [Peer assessor; Cohort B]

It was also reported that this transparency might also have helped when the participants received their own marks for their presentations. As one participant said, in relation to the marks:

I don't think anyone was shocked – they might not have got what they wanted – but they've seen your marks and the bar is high to get this mark so they weren't shocked. [Peer assessor; Cohort B]

Interestingly, the assesseees also thought that it was helpful to have had the opportunity, a year on, to receive feedback from their peers. It was reported that this led to a better understanding and level of trust in the marking criteria. One said:

It brings trust to the marking criteria. The person who marks goes through a list. When you go through the criteria, and marking it, it's reassuring, and gives a sense of reassurance to us. This is what they do. This is objective. [Peer assessee: Cohort A]

Accuracy in Grading: Whilst some peer assessors found it uncomfortable, but a useful process, the peer assesseees themselves thought that the peer assessors were accurate in their marking. One said:

Yeah but even coming across with a naive stance (who am I to judge?) the grades, on the most part, were spot on! It makes you realise we are capable – some of it is logical. [Peer assessee; Cohort A]

Overall, it was reported that the cohort was good at grading and this felt reassuring to the peer presenters. One said:

I learned lot from being there in terms of skills but also your feedback on my presentation reassured me that I had a fair mark. For me it was great. It was really important. [Peer assessee; Cohort A]

Furthermore, the peer assessee found it helpful receiving feedback from their peers, and thought that what their peers had to say was important. One participant said:

Having a teacher tell you it feels formal but having peers say, 'that wasn't so good or that was brilliant' you go 'yes, this is my strength' and 'yes this is what I need to work on.' We are all similar and on the same level. It's just one year's difference. It is a learning process and

there's always room for improvement. It's a process and helpful for both groups [Peer assessee; Cohort A]

Therefore, it appeared that grading their peers was not only helpful for the peer observers but was also helpful for the peer presenters themselves. A reciprocal process appeared to be at play and as one participant said, it is a '*community of learning*' (Peer assessee; Cohort A).

Discussion

In the present study, we asked postgraduate students to observe oral case presentations given by former students and to give them written feedback and a grade. The results provide new evidence for the positive educational value of taking part in peer review exercises for post-graduate students (McGarr and Clifford 2013). Our study is one of the few to use a 'no peer feedback' comparison group which helps to address a major limitation of existing research in this field (Topping 1998; Strijbos and Sluijsmans 2010). The relatively simple peer review exercise utilised in this study resulted in a significantly higher mean grade (one postgraduate degree classification higher) in the oral presentation assessment relative to students who did not take part in the exercise, which could not be explained by differences in UG degree grade. In line with previous research, the improved performance may reflect students' better understanding of the marking criteria, increased confidence in completing the assessment and decreased anxiety as reported in the post-exercise feedback survey and in the follow-up focus group (Rust, Price, and O'Donovan 2003; Nicol, Thomson, and Breslin 2014). Overall, our findings suggest that by introducing simple peer review exercises into higher education programmes it may be possible to better engage students in viewing assessments as more than simply a measure of current subject knowledge, which may help to address some aspects of student dissatisfaction with existing assessment practices

Notably, we found no differences between students who did and did not take part in the peer review exercise on any of the other assessments that formed part of the module (i.e., consultancy essay and reflective report). We also did not observe any significant between group differences on the student characteristics that are known to be associated with academic achievement including previous academic grade (Schneider and Preckel 2017). However, it cannot be ruled out that the higher grades on the oral presentation assessment observed among students who took part in the peer review exercise were due to prior experience in completing oral presentations and having better presentation skills. When undertaking research evaluating the effectiveness of learning exercises it would be of benefit to include the use of ‘control tasks’ or ‘pre-tests’ as part of quasi-experimental methods to assess basic competence in skills relevant to effectively completing assessments such as presentation skills or academic writing.

Alternatively, our findings may reflect the ability and quality of the peer presenters in cohort A. Psychology students are ideally suited participants in peer review workshops due to their firm grounding in reflective and critical thinking skills as outlined by the British Psychological Society (BPS), which accredits all higher education psychology courses in the UK. In this regard, acting as a peer presenter can be viewed as an important part of students’ continued professional development. However, reflective and critical thinking skills may not be core components of non-psychology courses in higher education. Thus, other programmes should consider whether to offer a reflective thinking workshop, in addition to a peer review exercises, to enable students to fully engage with the reflexive nature of peer review tasks.

The extant literature indicates that peer review exercises are not without limitations. For example, issues regarding the validity and reliability of feedback, potential bias, lack of anonymity, the intellectual challenge posed to students, the time consuming nature of peer feedback for both student and academic, and possible confrontational issues that may arise as

a result of disagreement between students, have all been reported (Topping et al. 2000; Ballantyne, Hughes, and Mylonas 2002; Davies 2006; Simon 2006). In the present study, we were able to address two major limitations associated with the successful implementation of peer review exercises in higher education settings. First, students observing the peer presenters were able to give their feedback anonymously by completing a structured feedback sheet. Ensuring that peer feedback is anonymous avoids the problems of social desirability bias and students feeling apprehensive and unsure about reviewing fellow students' work (Hanrahan and Isaacs 2001). Second, the time-consuming nature of peer review exercises for both students and academic staff is well-documented (Ballantyne, Hughes, and Mylonas 2002). The peer review exercise in the present study was run as a group session and was quick to run, and required limited preparation from peer presenters only.

The present study has three main limitations. Firstly, the small sample size limits the generalizability of our quantitative study findings. However, there is little doubt that peer review exercises are valuable pedagogical tools. Moreover, we see no reason why this peer review exercise could not be adapted for use in programmes with much larger student numbers without increasing the burden on students or academic staff. Secondly, the markers of the oral case presentation also facilitated the peer review exercise (HD and JH). Even though marks were allocated according to stringent marking criteria and subject to scrutiny by the MSc programme external examiners, it is possible that students were marked higher because they had taken part in an exercise designed to improve performance. Our findings require replication using independent academic markers. Thirdly, the pre-post study design meant that students were not randomly assigned to the groups who did and did not take part in the peer review exercise. However, we did demonstrate that the groups were comparable in characteristics known to be associated with educational performance (Ruiz-Primo et al. 2011).

Despite the clear benefits of introducing peer review exercises into classrooms, there are well documented concerns about student and academic staff perceptions about their ability to assess peers' work, particularly if the exercise requires the assigning of a grade. Students often report that marking peers work is one of the least enjoyed aspects of peer feedback exercises (Falchikov 1995) that may to some extent undermine the process (Kaufman and Schunn 2011). These concerns could reflect the fact that most students in higher education are not familiar with using assessments (and being graded) as a learning experience (assessment *for* learning) and instead are used to assessments measuring the extent of their knowledge (assessment *of* learning). Moreover, any changes to the pattern and provision of the assessment process which results in changes to the traditional teacher-student relationship can mean that these peer review exercises are met with resistance (McGarr and Clifford 2013).

However, prior research has found that students can mark peers work with an acceptable degree of accuracy (Bloxham and West 2004; Ashenafi 2017). Although we did not quantitatively assess students' ability to accurately mark the work of their peers, data collected in the follow-up focus group indicated that peer observers were accurate in their marking. Nonetheless, qualitative data suggested that some students found the experience of awarding their peers a grade as challenging and a 'responsibility'. We were unable to examine the benefits of peer grading vs. peer feedback on assessment marks, but there is some evidence to suggest that peer grading as opposed to peer feedback produces no distinct benefits for learning achievements, possibly due to the cognitive processes involved in creating reflective feedback (Lu and Law 2012). Our results confirm that this was indeed the case, with students reporting in the feedback survey that being able to ask former students from cohort A questions as part of the feedback process was an important component of the workshop, which helped the students in cohort B to structure their expectations regarding the

assessment. Thus, it appears that opening up a discussion between students enabled them to engage with the reflexive nature of the peer review workshop which resulted in significant improvements in assessment grades for cohort B.

In line with most peer review practices, our exercise was a stand-alone workshop designed to support students completing a specific summative assessment. In this respect, it is noteworthy that data from the focus group indicated that the peer review exercise made students feel part of a ‘community of learning’. In addition, the post-exercise feedback indicated that the majority of students would like to see more peer review exercises in the programme. It is plausible that the positive feedback from peer observers to the peer assesseses and the good degree of accuracy in marking may have helped engender this sense of community. This notion of community is similar to Lave & Wenger’s (1991) ‘community of practice’, which proposes a model of learning that is informal through social interaction rather than through the transmission of information encapsulated by the traditional lecture-style instruction and assessment that dominates higher education practice in the UK.

Conclusion

Our mixed methods study demonstrates that by taking part in a simple peer review exercise, students significantly improved their academic performance through the enriched learning experience. However, implementing pedagogical strategies that embrace assessment *for* learning practices in a post-graduate setting dominated by grading and competition will be challenging. In order for students to achieve longer-term learning gains, written and oral peer review exercises must be implemented throughout the duration of the study programme (Ashenafi 2017). However, this would involve changes to well established study programmes, and in some cases be administratively burdensome, particularly for programmes with large student numbers (Hanrahan and Isaacs 2001). It would therefore be important for study programmes to weigh up the potential benefits of peer review throughout the

programme against the potential administrative costs. Nevertheless, introducing peer review into any education setting appears to have significant benefits for students.

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Declaration of Interest statement

The authors report no conflicts of interest in relation to the subject of this study.

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Table 1. Characteristics and module assessment marks of postgraduate students who did not (cohort A) and those who did (cohort B) take part in a peer review exercise

	Cohort A (n=20) ^a		Cohort B (n=17)		Statistics
	n	%	n	%	
Sex (female)	18	90	15	88	<i>Fisher's Exact Test</i> , p=0.63
UG degree award (2:1) ^b	15	75	12	71	$X^2=0.9$, (df=1), p=0.76
Student origin					<i>Fisher's Exact Test</i> , p=0.41
UK	14	70	13	76	
European Union	4	20	3	18	
Neither UK nor EU	2	10	1	6	
English as a second language	4	20	4	24	<i>Fisher's Exact Test</i> , p=0.55
	Mean	SD	Mean	SD	
Age on programme entry	24 y	2 m	23 y	3 m	$t_{(35)}=-0.39$; p=0.69
Module assessment grades					
Case presentation	61.2	6.9	70.4	8.4	$t_{(34)}=3.59$; p<0.001
Essay	66.7	6.3	67.9	8.4	$t_{(35)}=0.49$; p=0.63
Reflective report	65.4	7.3	71.2	10.4	$t_{(34)}=1.96$; p=0.06

Notes: ^a data missing for one student on case presentation and reflective report assessment; ^b all students must have received a first class or upper second class undergraduate degree to enter the postgraduate programme

Table 2: Student responses to post peer review exercise feedback survey.

Cohort B (n=17)*				
Feedback questions	Yes		No	
	n	%	n	%
Were you able to get a better understanding of what is expected of you in your case presentation assessment?	15	100	0	0
Has the peer review exercise increased your confidence in completing the case presentation?	13	87	2	13
Do you think we should do more peer review exercises?	12	80	3	20

Notes: * Post-exercise feedback survey not completed by two students